

1745



Docket No. 1567.1021

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Application of:

Jeawoan LEE, et al.

Serial No. 09/986,919

Group Art Unit: 1745

Confirmation No. 6274

Filed: November 13, 2001

Examiner: Susy N. Tsang Foster

For: POSITIVE ELECTRODE FOR A LITHIUM-SULFUR BATTERY AND A LITHIUM-SULFUR BATTERY INCLUDING THE POSITIVE ELECTRODE

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**RESPONSE TO RESTRICTION REQUIREMENT**

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Sir:

This is responsive to the Office Action mailed September 3, 2003, having a shortened period for response set to expire on October 3, 2003, the following remarks are provided.

I. Provisional Election of Claims Pursuant to 37 CFR §1.142

Applicants provisionally elect **claims 1-31** in response to the preliminary restriction requirement set forth in the Office Action.

In addition, the Applicants provisionally elect the species of Group II, which appears to be drawn to claims 1, 3-13, and 15-31.

Lastly, while the Examiner acknowledges that at least claim 1 is generic with respect to both Species, it is further noted that at least independent claims 1, 3-12 are not restricted to the features used by the Examiner to define either Species in Groups I and II. Further, claims 13-31 are further generic to both Species since, while claims 13 and 25 recite the feature used to define Group II, the depending claims are not restricted from including, and therefore include, the Species of Group I so as to be generic to both Species. Further, at least depending claim 14 recites the feature of Group I so as to be generic to both Species. As such, it is respectfully submitted that claims 1, 3-12, and 13-31 are generic to both Species.

**II. Applicants Traverse the Requirement****A. Election between Claims 1-31 and 32-41**

As an initial point, it is believed that claims 32-41 are so closely related to elected claims 1-31 that they should remain in the same application to avoid imposing any undue burden, expense, and delay on the Applicants in preserving the invention recited in claims 32-41. The elected claims 1-31 are directed to a positive electrode for a lithium-sulfur battery comprising a current collector comprising pores and a lithium-sulfur battery using the same and claims 32-41 are drawn to a method of manufacturing a positive electrode for a lithium-sulfur battery. There have been no references cited to show any necessity for requiring restriction and, in fact, it is believed that the Examiner would find references containing both method and product claims in the same field of technology. As such, it is believed that the Examiner's search would naturally encompass both technologies.

While it is noted that the Examiner has identified different classifications for the product and method claims, it is believed that classification is not conclusive on the question of restriction. For instance, it is noted that, for the 114 total patents issued into class 429, subclass 235 and the 153 total patents issued into class 29, subclass 2 since 1976, at least 14 patents (representing roughly 10% of the total patents in each identified class and subclass) are in both classes and subclasses. As such, it is believed that evaluation of both sets of claims would not provide an *undue burden* upon the Examiner at this time in comparison with the additional expense and delay to Applicants in having to protect the additional subject matter recited by the Group II claims by filing a divisional application.

MPEP §803 sets forth the criteria for restriction between patentably distinct inventions. (A) indicates that the inventions must be independent (see MPEP §802.01, §806.04, §808.01) or distinct as claimed (see MPEP §806.05-806.05(i)); and (B) indicates that there must be a serious burden on the Examiner if restriction is required (see MPEP §803.02, §806.04(a)- §806.04(i), §808.01(a) and §808.02). As such, beyond showing separate classifications, it is respectfully submitted that the Examiner has not set forth sufficient evidence to show that the Examiner will experience a serious burden without imposing restriction that is out of proportion with the serious burden and inconvenience visited upon the applicant if restriction is required.

**B. Election between Species of Group I and Species of Group II**

In the Office Action, the Examiner requires an election between Species of Group I, defined as using a sulfur-based active material selected from the group consisting of elemental

sulfur, solid sulfur  $\text{Li}_2\text{S}_n$  ( $n \geq 1$ ), a catholyte in which  $\text{Li}_2\text{S}_n$  ( $n \geq 1$ ) dissolves, an organosulfur compound, and a carbon-sulfur polymer, and Species of Group II, defined as a negative active material selected from the group consisting of a material which can reversibly intercalate/deintercalate lithium ions, a material which can reversibly reform a chemical compound with lithium, a lithium metal, and a lithium-containing alloy. However, the Examiner has not set forth reasons as to how examination and searching both Groups I and II would produce an undue burden on the Examiner in comparison with the delay and expense visited upon the Applicants in making an election between the Species as defined by the Examiner. In addition, it is respectfully submitted that the Examiner's search and examination would naturally encompass those technologies relevant to both Species, especially in view of the number of apparent generic claims as set forth above. As such, it is respectfully submitted that the Examiner has not set forth sufficient evidence to maintain a prima facie requirement for an election between Species as defined by the Examiner.

III. Conclusion

Upon review of references involved in this field of technology, when considering that the method recited by the claims 32-41 is directed to a method of manufacturing a positive electrode for a lithium-sulfur battery, and elected claims 1-31 are directed to a positive electrode for a lithium-sulfur battery comprising a current collector comprising pores and a lithium-sulfur battery using the same, and when all of the other various facts are taken into consideration, it is believed that upon reconsideration of the Examiner's initial restriction requirement, all of the pending claims should be examined in the subject application.

Moreover, it is similarly requested that the Examiner reconsider the election between Species of Group I and Group II for reasons set forth above.

In view of the foregoing arguments and remarks, all claims are deemed to be allowable and this application is believed to be in condition for allowance.

If any further fees are required in connection with the filing of this Restriction, please charge the same to our deposit account number 19-3935.

Respectfully submitted,

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